

May 9, 2023

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Rhode Island Coastal Resources Management Council  
Stedman Government Center  
Suite 116, 4808 Tower Hill Road, Wakefield, RI 02879-1900

**RE: Revolution Wind Federal Consistency Decision**

Dear Council Members,

The current Revolution Wind proposal before the Council violates the Ocean SAMP's Enforceable Policy §11.10.1(E) in multiple ways. That Enforceable Policy states: "The Council shall prohibit any other uses or activities that would result in significant long-term negative impacts Rhode Island's commercial or recreational fisheries. Long-term impacts are defined as those that affect more than one or two seasons." While the Revolution Wind Fisheries Mitigation Package offers a "Rhode Island Navigational Enhancement and Training Program" with a voucher program to provide fishermen with new pulse radars, also known as Doppler radar, as an attempt to "mitigate" marine vessel radar interference,<sup>1</sup> this will not mitigate the actual impact of marine radar interference that commercial fishing vessels and all vessels will experience from the Revolution Wind project, an impact that will extend well past one or two years. Because there are no current solutions to radar interference from Revolution Wind or other offshore wind projects.

In 2022, the National Academies of Science released a report commissioned by BOEM entitled "Wind Turbine Generator Impacts to Marine Vessel Radar" (attached).<sup>2</sup> That report concluded that "WTG interference decreases the effectiveness of MVR mounted on all vessel classes, and the sizes of anticipated marine WTG farms across the U.S. OCS will exacerbate this situation"<sup>3</sup>, that "WTGs reduce the effectiveness of both magnetron-based and Doppler-based MVR radar" (such as that of the Revolution Wind mitigation package)<sup>4</sup>, that "no standard approach to active radar deployment for operation in a WTG environment is available", and that the USCG recognizes that "how MVR will lose efficacy in a WTG environment, and corresponding impact on navigation performance, requires in-depth testing and evaluation".<sup>5</sup> Therefore, providing fishermen with a fund to purchase new radars that will themselves experience interference is not an effective mitigation measure. It is not a solution. Solutions will require "in depth testing and evaluation" that has not yet occurred.

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<sup>1</sup> See [http://www.crmc.ri.gov/meetings/2023\\_0509semipacket/RevWindFisheriesMitigationPackage\\_041823.pdf](http://www.crmc.ri.gov/meetings/2023_0509semipacket/RevWindFisheriesMitigationPackage_041823.pdf).

<sup>2</sup> "Wind Turbine Generator Impacts to Marine Vessel Radar (2022), National Academies Press, available at <https://nap.nationalacademies.org/catalog/26430/wind-turbine-generator-impacts-to-marine-vessel-radar>.

<sup>3</sup> Ibid, p. 5.

<sup>4</sup> Ibid, p. 5.

<sup>5</sup> Ibid, p. 66.

However, experience from the UK dictates there are no quick solutions. If there were, a solution would already exist. In fact, due to air defense radar interference from offshore wind farms in the UK, and what was thought to be a solution to this interference, “wind turbine proof” defense radars were required to be installed as mitigation. However, in 2018, after one such project and associated “wind turbine proof” radars were both installed, the UK Ministry of Defence informed developers, including Orsted, that actual trials determined that the interference still existed.<sup>6</sup> But by then it was too late. To this day, the UK has issued grants and conducted multiple iterations of actual competitions to attempt to find a solution, so far with no results as of 2023.<sup>7</sup> It is likely to be the case with marine vessel radar as well, as currently no solution exists and no in-depth testing or evaluation has occurred, including for the effectiveness of pulse radar. In any event, the Revolution Wind mitigation is not mitigation and the problem is open ended, extending past one or two fishing seasons with respect to marine vessel radar, therefore impacting long-term navigational safety for Rhode Island fishermen.

Additionally, USCG vessel radar will also be impacted, leading to Search and Rescue impacts. The National Academy of Sciences 2022 study stated, “WTG interaction with MVRs at the scale of the proposed U.S. deployment will lead to unforeseen complications due to heightened effects of propagation, multipath, shadowing, and degraded Automatic Radar Plotting Aid performance. Maritime search and rescue (SAR) assets rely on MVR to search for smaller boats as their primary targets in the conduct of ordinary SAR operations. A loss of contact with smaller vessels due to the various forms of MVR interference could complicate MTS operations, and is therefore particularly consequential when conducting maritime surface SAR operations in and adjacent to an offshore wind farm.”<sup>8</sup> None of this has been mitigated and there are no immediate solutions or mitigations available prior to project construction deadlines.

One additional unmitigated fisheries impact affecting navigational safety and USCG SAR is the loss of HF radar caused by offshore wind turbines. This radar tracks ocean currents and is used by the USCG to determine vessel drift and pinpoint SAR locations for best chance of success. A 2019 HF Radar Wind Turbine Interference Community Working Group Report stated, “Data from the HF Radar Network is used by the U.S. Coast Guard and NOAA for search and rescue operations and spill response as well as by individual scientists on a daily basis. However, the rapidly emerging offshore wind energy industry in the U.S. has the potential to degrade the performance of HF radar systems operating in the vicinity of wind turbines. A recently completed study (Trockel et al.2018) has documented the wind turbine interference (or “WTI”) on HF radars and shown that the location and the magnitude of the interference can directly interfere with accurate measurements over broad areas of the radar’s coverage. For small numbers of turbines, pathways to mitigate the interference exist. Yet, the offshore wind industry will soon outpace these simplified solutions as plans for large farms of turbines are moving towards installation. This near-future scenario greatly exceeds the scope of initial efforts and at present no

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<sup>6</sup> See Orsted presentation, slide 42 of 58 at: <https://www.energy.gov/sites/prod/files/2020/04/f74/offshore-wind-turbine-radar-interference-mitigation-webinar-4-20-2020.pdf>.

<sup>7</sup> See <https://www.gov.uk/government/news/over-14-million-available-for-windfarm-mitigation-for-uk-air-defence-phase-3>.

<sup>8</sup> “Wind Turbine Generator Impacts to Marine Vessel Radar (2022), National Academies Press, available at <https://nap.nationalacademies.org/catalog/26430/wind-turbine-generator-impacts-to-marine-vessel-radar>, p. 5.

operational solutions exist to mitigate the future interference.”<sup>9</sup> This impact has still not been mitigated or solved. The report recommended “In the long term (2-5 years), a robust and coordinated in situ effort should be carried out to validate mitigation methods, test mitigation software for surface current products, and further mitigation development for advanced HF radar products.”<sup>10</sup> This has still not been completed. Even if it were to commence today, the timeframe for success is longer than one or two fishing seasons, in violation of the Ocean SAMP enforceable policies. It is in fact an unmitigated impact to commercial fisheries from a safety perspective, again in violation of the Ocean SAMP.

Project activity that disrupts fishing will also continue for well beyond one or two seasons, in violation of Ocean SAMP enforceable policy. Revolution Wind survey and maintenance activities will also be continuing throughout the operational period and will undoubtedly lead to both continual interference with fishing operations (including both mobile and fixed gear fishing) and exclusion zones. The Federal Register Notice for Revolution Wind’s requested Letter of Authorization for Incidental Takes of Marine Mammals (attached) lasts for a period of five years (longer than the Ocean SAMP’s one to two fishing seasons cutoff) and states, “High-resolution geophysical site characterization surveys would occur annually throughout the 5 years the rule and LOA would be effective..... HRG surveys would utilize up to a maximum of four vessels working concurrently in different sections of the lease area and RWECC corridor.... During non-construction years (the final 4 years in which the regulations and LOA would be effective), Revolution Wind estimates 2,117 km would be surveyed in the lease area over 30.2 days and 1,642 km would be surveyed over 23.5 days along the RWECC corridor each year. Revolution Wind anticipates that each vessel would survey an average of 70 km (44 miles) per day, assuming a 4 km/hour (2.16 knots) vessel speed and 24-hour operations. Each day that a survey vessel covers 70 km (44 miles) of survey trackline is considered a vessel day. For example, Revolution Wind would consider 2 vessels operating concurrently, with each surveying 70 km (44 miles), two vessel days. In some cases, vessels may conduct daylight-only 12-hour nearshore surveys, covering half that distance (35 km or 22 miles). Over the course of 5 years, HRG surveys would be conducted at any time of year for a total of 30,343 km (18,854 miles) over 433.5 vessel days.”<sup>11</sup> Mobile gear vessels will be required to give wide berth to the operating survey vessels over these five years. Orsted’s mariner’s briefing states “All mariners transiting or fishing in the survey area are requested to give wide berth to survey vessels as they may be limited in their ability to maneuver (VRAM) and towing gear out to 300 meters behind the vessel. Vessels in the vicinity of the survey vessels should operate in a manner that will not endanger the vessel or associated equipment”<sup>12</sup>. Fixed gear fishermen will be required to move their gear out of the way of ongoing surveys or risk gear loss. Therefore, the interference with commercial fishing will exceed the Ocean SAMP’s allowable impacts of one-two fishing seasons, and the project cannot be approved according to the SAMP policies.

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<sup>9</sup> See See ““High Frequency Radar Wind Turbine Interference Community Working Group Report” June 2019 at [https://darchive.mblwhoilibrary.org/bitstream/handle/1912/25127/HFRadar\\_2019\\_WindTurbineInterference\\_WorkingGroupReport\\_Final2.pdf?sequence=1&isAllowed=y](https://darchive.mblwhoilibrary.org/bitstream/handle/1912/25127/HFRadar_2019_WindTurbineInterference_WorkingGroupReport_Final2.pdf?sequence=1&isAllowed=y) , p. 2. Also attached.

<sup>10</sup> Ibid, p. 1.

<sup>11</sup> See <https://www.federalregister.gov/documents/2022/12/23/2022-27491/takes-of-marine-mammals-incident-to-specified-activities-taking-marine-mammals-incident-to-the>.

<sup>12</sup> Orsted Mariner’s Briefing: Northeast Marine Activity, Notice no. 283, Date of Notice: December 29, 2022.

This will most likely be compounded with exclusion zones for maintenance. Turbine failure is exponentially higher for large turbines like those proposed by Revolution Wind than the sizes of the BIWF turbines. Recently, a leading underwriter for renewable energy projects compiled 10 years of company claims data and demonstrated “55 percent of all claims by frequency come from component failures during construction from 8MW+ machines” and that “8MW+ machines are suffering from component failures within the first 2 years of operation”.<sup>13</sup> Therefore, safety exclusion zones for repairs and maintenance are likely to be needed soon and regularly, further compounding fisheries impacts in excess of one to two fishing seasons. Furthermore, Orsted has already experienced issues with cable damage/failures at 10 of its giant offshore wind farms in the UK due to the cable armoring eroding the cables themselves, leading to both short- and long-term plans of repair spanning multiple years.<sup>14</sup> These situations are likely to happen with Revolution Wind and other projects as well, especially since project cables will require cable armoring where unable to be buried, such as rocky glacial moraine areas.

This also highlights the fact the FAB’s request of “adequate funds for decommissioning and equipment removal at the time the structure is introduced into the ocean. Including funding set aside for unforeseen circumstances that may lead to early decommissioning”<sup>15</sup> is not just reasonable but is necessary. According to the underwriter report on large turbines like those of the Revolution Wind project, “rapid commercialisation of ‘prototypical’ technologies is now leading to a concerning number of losses, and subsequently piling financial pressure on manufacturers, the supply chain and the insurance market”. Should the Council approve the Revolution Wind project in violation of the SAMP enforceable policies, it must ensure adequate and early decommissioning funds at the outset as demanded by the FAB. Rhode Island in general and the commercial fishing industry in particular should not be the collateral damage for potential project failures.

The Revolution Wind project also violates the Ocean SAMP’s Enforceable Policy §11.10.1(E) by creating long-term effects on National Marine Fisheries Service (NMFS) fisheries surveys, from which all fishery stock assessments and therefore commercial and recreational fishing quotas are derived. The NMFS survey vessels will be unable to survey in wind farm areas, leaving major gaps in data that will lead to quota reductions due to scientific uncertainty. NMFS’ comments on the Revolution Wind Draft Environmental Impact statement (attached) state, “As we have discussed previously, we have significant concerns related to the major impacts offshore wind will have on our NOAA scientific surveys. Regional offshore wind development projects are the primary cause of immediate impacts on NOAA scientific surveys and research due to the presence of structures, as noted in the DEIS. The DEIS states that implementation of the NMFS/BOEM Federal Survey Mitigation Strategy would reduce effects on commercial fisheries and for-hire recreational fishing from a major adverse impact to a long-term moderate adverse impact level. This conclusion is not supported nor is it consistent with the best available analysis conducted by NMFS. The DEIS does not include any discussion nor details on how these major impacts will be mitigated at the project level other than referencing the ongoing BOEM/ NMFS survey mitigation efforts, suggesting that the project would comply with mitigation measures set forth in the federal survey mitigation strategy. However, the mitigation strategy is not currently

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<sup>13</sup> See <https://www.gcube-insurance.com/news/offshore-wind-turbine-scaling-is-creating-unsustainable-market-risks/>.

<sup>14</sup> See <https://www.theguardian.com/business/2021/apr/29/rsted-says-offshore-uk-windfarms-need-urgent-repairs>.

<sup>15</sup> See [http://www.crmc.ri.gov/meetings/2023\\_0509semipacket/FedCon\\_MemoSupplement\\_4-24-23.pdf](http://www.crmc.ri.gov/meetings/2023_0509semipacket/FedCon_MemoSupplement_4-24-23.pdf).

resourced and does not set requirements or standards with which projects must comply.”<sup>16</sup> Revolution Wind does not provide any fisheries mitigation to address these long-term impacts at the federal or state level. This violates the Ocean SAMP’s Enforceable Policy §11.10.1 (G) which mandates “Impacts to commercial and recreational fisheries must be mitigated.” The Revolution Wind fisheries surveys do not meet the standards or criteria of the NMFS fisheries surveys or fisheries stock assessment standards and therefore are not a suitable mitigation for these “major” impacts that elicit “significant concerns” from the agency. NMFS itself has stated that there is no mitigation for this impact.

The Ocean SAMP’s Enforceable Policy §11.10.1 (G) which mandates that “Impacts to commercial and recreational fisheries must be mitigated” is also violated by the lack of cumulative impact compensation and mitigation. At the last Council meeting, on April 25, the Council heard from the developer that it plans to implement fisheries mitigation according to BOEM’s Mitigation Guidance document,<sup>17</sup> which it failed to mention is only in draft form, is not enforceable, is not based on the best available science, and is deficient according to the Fishery Management Councils. The New England Fishery Management Council, Mid Atlantic Fishery Management Council, and South Atlantic Fishery Management Council had this to say about that document’s approach to fisheries mitigation: “We are unaware of any attempts to estimate an individual project’s contributions to cumulative effects.. The inability to address regional mitigation and cumulative impacts is a serious shortcoming of the guidance. As we have stated in several past comment letters to BOEM, we are very concerned about the cumulative impacts of multiple wind energy projects on the fisheries we manage. The multiple wind energy projects planned along the east coast will have cumulative and compounding effects on our fisheries. The synergistic effects of multiple projects may be more than additive and this may not be sufficiently identified in project-specific documents; therefore, losses may be undercompensated by taking a project-by-project approach.”<sup>18</sup> None of Revolution Wind’s fisheries mitigation and compensation plan addresses cumulative impacts and therefore, those impacts are unmitigated in current proposals to the Council. The Revolution Wind federal BOEM documents do not even properly address cumulative fishery or fishery resource impacts according to NMFS, which stated in comments to BOEM on the project documents that “the evaluation of cumulative impacts does not reflect the true scale of regional wind development”.<sup>19</sup> Therefore, cumulative impacts must first be properly assessed with regards to fisheries before they can be mitigated. To date, neither have occurred.

Other fisheries impacts that have not been mitigated by the Revolution Wind proposal include the Ocean SAMP Enforceable Policy §11.10.1(I) which states that “The Council shall protect sensitive habitat areas” and the Revolution Wind project siting on a New England Fishery Management Council designated Habitat Area of Particular Concern,<sup>20</sup> does not meet this criteria, nor that of Enforceable Policy § 11.10.1(C) which states that “Offshore Developments shall not have a significant adverse impact

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<sup>16</sup> See NMFS “Cooperating agency review comments on the Draft Environmental Impact Statement for the Revolution Wind Project” October 17, 2022, attached.

<sup>17</sup> See also [http://www.crmc.ri.gov/meetings/2023\\_0509semipacket/RevWindFisheriesMitigationPackage\\_041823.pdf](http://www.crmc.ri.gov/meetings/2023_0509semipacket/RevWindFisheriesMitigationPackage_041823.pdf)

<sup>18</sup> See NEFMC, MAFMC, SAFMC to BOEM“ Re: Draft Fisheries Mitigation Guidance”, August 22, 2022, attached.

<sup>19</sup> See NMFS “Cooperating agency review comments on the Draft Environmental Impact Statement for the Revolution Wind Project” October 17, 2022, attached.

<sup>20</sup> See <https://d23h0vhsm26o6d.cloudfront.net/NEFMC-Approves-HAPC-for-Southern-New-England-Previews-Northeast-Regional-Habitat-Assessment-Data-Explorer.pdf>.

on the natural resources or existing human uses...". For example, NMFS' comments on the Revolution Wind project and its impacts to Atlantic cod state that the project would result in "substantial alteration" of important cod habitat and that the project requires pile driving time of year restrictions to avoid overlap with cod spawning activity, which has also been requested by the FAB in their April 24, 2023 supplement to the Council.<sup>21</sup> NMFS has stated that Revolution Wind, without further restrictions, will have "population level impacts to Atlantic cod in Southern New England."<sup>22</sup> NMFS's comments read, "The project substantially overlaps with extensive highly complex and diverse habitats on Cox Ledge as well as known spawning activity for Atlantic cod, a species of biological, ecological, economic, and cultural significance to this region. In June 2022, the New England Fishery Management Council approved a new habitat area of particular concern (HAPC) that overlaps with the Revolution Wind Project. This action was approved to protect complex habitats and cod spawning habitats from negative impacts associated with offshore wind development.... Further, there are missing analyses and the DEIS lacks support for conclusions related to adverse impact determinations. For example, while there are multiple activities included under seabed preparation that would occur within known cod spawning aggregations, including boulder plows, grabs, and grapple runs required to clear the cobble/boulder habitats on Cox Ledge, there is no analysis of impacts from seabed preparation on Atlantic cod spawning activity. Further, these activities would result in a substantial alteration of highly complex cobble and boulder habitats on Cox Ledge."<sup>23</sup> NMFS goes on to conclude that, "NMFS considers the proposed action to have unmitigated major adverse impacts to EFH and Atlantic cod as the proposed action includes full build out of the lease area, including Cox Ledge, and the proposed mitigation measures would not protect Atlantic cod spawning. Based on our review of the proposed action, we anticipate project and regional-scale adverse impacts to habitats on Cox Ledge and population-level impacts to Atlantic cod in Southern New England; by BOEM's definition, this is a major adverse impact to benthic habitat, finfish, and EFH."<sup>24</sup> Population level impacts on a commercially important fish stock as a result of the Revolution Wind project is unacceptable and violates the Ocean SAMP, as this constitutes "a significant adverse impact on the natural resources" per Enforceable Policy § 11.10.1(C). There are no mitigation measures involved to prevent this impact, or to prevent substantial alteration of the "sensitive habitat areas" that the Council "shall protect" according to Enforceable Policy §11.10.1(I).

Therefore, the current Revolution Wind fisheries mitigation proposal before the Council does not meet the criteria established by the enforceable policies of the RI Ocean SAMP and RI state regulation. The fisheries mitigation is insufficient to meet those criteria, and state regulation requires that the Council prohibit any long-term impact producing activity, including those raised here. I therefore encourage the Council to deny consistency determination.

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<sup>21</sup> See [http://www.crmc.ri.gov/meetings/2023\\_0509semipacket/FedCon\\_MemoSupplement\\_4-24-23.pdf](http://www.crmc.ri.gov/meetings/2023_0509semipacket/FedCon_MemoSupplement_4-24-23.pdf). Also see NMFS "Cooperating agency review comments on the Draft Environmental Impact Statement for the Revolution Wind Project" October 17, 2022, attached.

<sup>22</sup> See NMFS "Cooperating agency review comments on the Draft Environmental Impact Statement for the Revolution Wind Project" October 17, 2022, attached.

<sup>23</sup> Ibid.

<sup>24</sup> Ibid.

Thank you for the opportunity to comment.

Sincerely,

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